HQD Benchtop meters

Technical Data overview (DataSheet DOC052.52.25004)

Designed to simplify, the Hach HQ4XXd Benchtop meter series takes the guesswork out of measurements.
HQd meters support smart probes that automatically recognize the testing parameter, calibration history, and method settings to minimize errors and setup time.

- Plug and play smart probes make switching probes and parameters quick and easy
- Ultra-bright screen and large font size for easy to read results
- Internal USB ports for simplified data transfer, peripherals, and software updates

Technical Data

Subject to change without notice

	HQ411d	HQ430d	HQ440d
Designation	Single channel	Single channel	Dual channel
Parameter	pH/ORP meter	pH/ORP, Conductivity/TDS/Salinity/Resistivity Dissolved Gxygen (LDO), BOD (LBOD), ISE	
Measuring range			
pH	0 … 14 pH 0 … 80°C	0 … 14 pH 0 … 80°C	
ORP	± 1200 mV	± 1200 mV	
Conductivity	-	0.01 µS … 200 mS/cm, -10 … 110°C	
TDS	-	0 … 50,000 mg/l TDS	
Salinity	-	0 … 42 ppt (g/kg, ‰)	
Dissolved Oxygen	- -	0.1 … 20 mg/l DO 1 … 200% Saturation 0 … 50°C	
BOD	-	yes, using LBOD	
ISE	-	Concentration, mV, temperature probe dependant	
Measurement mode	Manual, interval, continuous (selectable); analytical methods editable		
Display	Backlit graphic display, 240 x 160 pixel, automatic switch-off in economy mode		
Inputs	5-pin custom M12 for IntelliCal probes		
Interfaces	Integrated USB type A (USB flash memory device, printer, keyboard) Integrated USB type B (PC)		
Communication	Direct to PC (Bi-directional) via USB Virtual Serial Port		
Data Export	Download to PC or flash memory device via USB. Automatically transfer entire data log or as readings are taken.		
Special features	Sensor status indicator, AutoCal, AutoRead, sample ID, operator ID, password protection, internal datalogger for 500 measurements, multi language user interface, basic, GLP/ISO compliant data stored with calibration details. Calibration and check standard data stored in data log. Automatically store in "continuous read" mode and interval measurement mode. Manually store in "press to read" mode.		
User Interface languages	English, French, German, Italian, Spanish, Danish, Dutch, Polish, Portuguese, Turkish, Russian Swedish, Czech		
Physical and Environmental			
Power Requirement	115/230VAC supplied by universal Power Adapter Kit 4 x AA Batteries or 4 rechargeable NiMH batteries optionally as power backup		
Battery Life time	> 200 hours		
Enclosure rating	IP54 (Spray - and dust resistant)		
Dimension	175 x 235 x 86 mm (9.3 x 6.9 x 3.4 in.) (W x H x D)		
Weight	~ 750g (1.87 lbs) without batteries		
Warranty	3 years for the meter		

HQD meters

HQ4xxd - Digital Benchtop Meter series (DataSheet DOC052.52.25004)

Part No.	Designation
HQ440D.98.00002	HQ440d multi - Multiparameter Benchtop Meter - dual channel input
HQ440D.98.00012	HQ440d multi - Multiparameter Benchtop Meter - dual channel input including universal electrode holder for standard IntelliCal sensors
HQ430D.98.00002	HQ430d flexi - Multiparameter Benchtop Meter - single channel input
HQ430D.98.00012	HQ430d flexi - Multiparameter Benchtop Meter - single channel input including universal electrode holder for standard IntelliCal sensors
HQ411D.98.00002	HQ411d - Benchtop pH/mV Meter - single channel input
HQ411D.98.00012	HQ411d - Benchtop pH/mV Meter - single channel input including universal electrode holder for standard IntelliCal sensors

All meters mentioned above, come with:
- illustrated Quick start guide
- printed Basic User Manual (multi-lingual (29 languages))
- Documentation CD-Rom incl. Full User Manual (GB, D, F, I, E)
  HQd PC Application software for data transfer to PC,
- batteries type AA, 1.5VDC, pk/4
- Universal Power Supply with plug adapter kit (115...230VAC, suitable for all regions)
- USB cable, type A male / B male, 2 m (not included with HQ411d Benchtop pH/mV Meter)

Optional accessories / replacements

8508850	Universal Probe Stand for Standard IntelliCAL(R) Probes
9248800	Universal Power Supply with worldwide plug-adapter kit
LZV582	USB-Keyboard, type CHERRY Compact Keyboard (US Layout)
5924000	USB cable, type A male / B male, 1.8 m

HQD E-Chem accessories

IntelliCal™ Digital sensors for HQD meters

- Change probes between meters without re-calibrating
- Track performance with calibration history
- Be alerted when you need to re-calibrate
- Ultimate traceability easily to obtain:
  - Time and Date stamp
  - Operator and Sample ID
  - Calibration history
  - Parameter
  - Reading
- Factory calibrated probes — be up and running right out of the box
- Unbreakable, locking, color coded connectors for easy identification of parameter

Standard sensors come with integrated T-sensor, in Epoxy body and are waterproof up to 3 m for 24 hours. Probe measures 7" (17.8 cm) and weighs 0.02 lbs. (9.1 g) (probe only).
Rugged sensors come with integrated T-sensor, in Stainless Steel body and reinforced cable. Probes are waterproof up to 30 meters for 24 hours.
Probe measures 8.5" (21.6 cm) and weighs 1.26 lbs. (0.57 kg) (probe only)

Part No.	Designation
	IntelliCal™ pH probes
	for use with HQ11D/HQ30D/HQ40D *Gel-filled or Liquid-filled pH sensor with integrated T-sensor* *Measuring range 2 ...14 pH (Gel), 0 ... 14 pH (Liquid), 0 ... 80°C*
PHC10101	IntelliCal pH probe, standard, gel-filled, 1m cable
PHC10103	IntelliCal pH probe, standard, gel-filled, 3m cable
PHC30101	IntelliCal pH probe, standard, liquid filled, 1m cable
PHC30103	IntelliCal pH probe, standard, liquid filled, 3m cable
PHC10105	IntelliCal pH probe, rugged, gel-filled, 5m cable
PHC10110	IntelliCal pH probe, rugged, gel-filled, 10m cable
PHC10115	IntelliCal pH probe, rugged, gel-filled, 15m cable
PHC10130	IntelliCal pH probe, rugged, gel-filled, 30m cable

Note: Liquid filled sensors comes with pH filling solution (bottle, 30 ml).

	Accessories for ORP measurement
	for use with HQ11D/HQ30D/HQ40D *Gel-filled or Liquid-filled ORP sensor with integrated T-sensor* *Measuring range ± 1200 mV, 0 ... 80°C*
MTC10101	IntelliCal ORP probe, standard, gel-filled, 1m cable
MTC10103	IntelliCal ORP probe, standard, gel-filled, 3m cable
MTC30101	IntelliCal ORP probe, standard, liquid filled, 1m cable
MTC30103	IntelliCal ORP probe, standard, liquid filled, 3m cable
PHC10105	IntelliCal ORP probe, rugged, refillable, 5m cable
PHC10110	IntelliCal ORP probe, rugged, refillable, 10m cable
PHC10115	IntelliCal ORP probe, rugged, refillable, 15m cable
PHC10130	IntelliCal ORP probe, rugged, refillable, 30m cable

Note: Liquid filled sensors comes with 3 mol KCl filling solution (bottle, 59 ml).

HQD E-Chem accessories

IntelliCal™ Digital sensors for HQD meters & accessories

Part No.	Designation
	IntelliCal™ Conductivity probes
	4 pole graphite sensor for use with HQ14D/HQ30D/HQ40D *Measuring range 0.01 µS/cm ... 200 ms/cm, -10 ... 110°C* *TDS: 0 - 50,000 mg/L as NaCl, Salinity: 0 - 42 g/kg or (‰), Resistivity: 2.5 Ω·cm - 49 MΩ·cm*
CDC40101	IntelliCal conductivity probe, standard, 4 pole graphite, 1m cable
CDC40103	IntelliCal conductivity probe, standard, 4 pole graphite, 3m cable
CDC40105	IntelliCal conductivity probe, rugged, 4 pole graphite, 5m cable
CDC40110	IntelliCal conductivity probe, rugged, 4 pole graphite, 10m cable
CDC40115	IntelliCal conductivity probe, rugged, 4 pole graphite, 15m cable
CDC40130	IntelliCal conductivity probe, rugged, 4 pole graphite, 30m cable
	IntelliCal™ LDO sensors
	Luminescent Dissolved Oxygen sensor for use with HQ30D/HQ40D *Measuring range 0.1 ... 200 mg/l, 0 ... 200%, 0 ... 50°C*
LDO10101	IntelliCal Dissolved Oxygen (LDO) probe, standard, 1m cable
LDO10103	IntelliCal Dissolved Oxygen (LDO) probe, standard, 3m cable
LDO10105	IntelliCal Dissolved Oxygen (LDO) probe, rugged, 5m cable
LDO10110	IntelliCal Dissolved Oxygen (LDO) probe, rugged, 10m cable
LDO10115	IntelliCal Dissolved Oxygen (LDO) probe, rugged, 15m cable
LDO10130	IntelliCal Dissolved Oxygen (LDO) probe, rugged, 30m cable

Note: LDO IntelliCal sensors come with pre-installed LDO sensor cap, iButton, cap seal, and o-ring.

	IntelliCal LDO Accessories	
5811200	LDO sensor cap for INTELLICAL™ LDO electrode with update module	
	IntelliCal Electrode Accessories	
2841700	pH filling solution (for PHC301), 3M KCl saturated with AgCl	30 ml
2756549	pH electrode storage solution	500 ml
C20C280	0.001 Molar KCl, 148 µS/cm @ 25°C	500 ml
C20C270	0.01 Molar KCl, 1413 µS/cm @ 25°C	500 ml
C20C250	0.1 Molar KCl, 12.88 mS/cm @ 25°C	500 ml
2307542	NaCl Standard, 180 µS/cm @ 25°C	100 ml
1440042	NaCl Standard, 1000 µS/cm @ 25°C	100 ml
2307442	NaCl Standard, 18.00 mS/cm @ 25°C	100 ml

Note: For further Conductivity Standards, please refer to Chapter "sensION Accessories for Conductivity Measurement"

HQD E-Chem accessories

IntelliCal™ Digital ISE sensors for HQD meters & accessories

Part No.	Designation
	IntelliCal™ ISE sensors
ISENA38101	IntelliCAL Sodium ISE Combination Electrode, with integral thermistor, refillable, 0 ... 50°C Measuring range: 0.023 mg/l … 23,000 mg/l (1x10^{-6} mol … 1 mol) Na^+ Reference type: Ag/AgCl Junction: double ceramic porous pin Body material made of Zeonor, 12 mm Ø x 103 (220) mm, 1.0 m cable with HQd connector comes with 0.02M NH4Cl Electrode Filling solution in 59 ml bottle
ISENA38103	same as ISENA38101, but 3.0 m cable with HQd connector instead
ISENH318101	IntelliCAL Ammonia ISE Combination Electrode, with integral thermistor, refillable, 0 ... 50°C Measuring range: 0.01 … 14,000 mg/l (5x10^{-7} … 1 mol) as NH3-N Sensor type: Gas sensing type with replaeable NH3 sensitive membrane Reference type: Ag/AgCl Junction: double ceramic porous pin Body material made of Zeonor, 12 mm Ø x 103 (220) mm, 1.0 m cable with HQd connector comes with 3 replaceable Ammonia membrane modules and 50 ml of electrolyte filling solution
ISENH318103	same as ISENH318103, but 3.0 m cable with HQd connector instead
ISENH418101	IntelliCAL Ammonia CombinationISE Electrode, with integral thermistor, refillable, 0 ... 50°C Measuring range: 0.07 … 7,000 mg/l (5x10^{-6} … 0.5 mol) as NH4-N Sensor type: Solid-state PVC membrane Reference type: Ag/AgCl Junction: annular Body material made of Zeonor, 12 mm Ø x 103 (220) mm, 1.0 m cable with HQd connector
ISENH418103	same as ISENH418101, but 3.0 m cable with HQd connector instead
ISECL18101	IntelliCAL Chloride ISE Combination Electrode, with integral thermistor, refillable, 5 ... 50°C Measuring range: 0.1 … 35,500 mg/l (3x10^{-6} … 1.0 mol) as Cl- Sensor type: Solid-state disc Reference type: Ag/AgCl Junction: annular Body material made of Epoxy, 12 mm Ø x 103 (220) mm, 1.0 m cable with HQd connector
ISECL18103	same as ISECL18101, but 3.0 m cable with HQd connector instead
ISEF12101	IntelliCAL Fluoride ISE Combination Electrode, with integral thermistor, refillable, 0 ... 50°C Measuring range: 0.02 … 19,000 mg/l (1x10^{-6} … 1.0 mol) as F- Sensor type: Solid-state crystal Reference type: Ag/AgCl Junction: annular Body material made of Epoxy, 12 mm Ø x 103 (220) mm, 1.0 m cable with HQd connector
ISEF12103	same as ISEF18101, but 3.0 m cable with HQd connector instead
ISENO318101	IntelliCAL Nitrate ISE Combination Electrode, with integral thermistor, refillable, 0 ... 50°C Measuring range: 0.1 … 14,000 mg/l (7x10^{-6} … 1.0 mol) as NO_3-N Sensor type: Solid-state PVC membrane Reference type: Ag/AgCl Junction: annular Body material made of Epoxy, 12 mm Ø x 103 (220) mm, 1.0 m cable with HQd connector
ISENO318103	same as ISEF18101, but 3.0 m cable with HQd connector instead

HQD E-Chem accessories

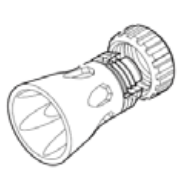
IntelliCal™ Digital ISE sensors for HQD meters & accessories

Part No.	Designation	
	Accesories for IntelliCal ISE electrodes	
	for ISENa3810x	
4451569	Sodium/Potassium ISA Powder Pillows, pk/100	
2965126	Sodium Electrode Filling Solution, 0.02M NH4Cl, 59 ml	
2318149	Sodium Standard Solution, 100 mg/l as Na, 500 ml	
2318153	Sodium Standard Solution, 100 mg/l as Na, 1000 ml	
1474949	Sodium Standard Solution, 1000 mg/l as Na, 500 ml	
2835153	Sodium Standard Solution, 10 mg/l as Na, 1000 ml	
	for ISENH31810x	
4447226	Ammonia Electrode Filling Solution, 50 ml	
4447169	Ammonia ISA Powder Pillows, pk/100	
	for ISENH41810x	
2980699	Ammonia ISA Powder Pillows, pk/100	
189149	Nitrogen-Ammonia Standard Solution, 1 mg/l	
15349	Nitrogen-Ammonia Standard Solution, 10 mg/l	
2406549	Nitrogen-Ammonia Standard Solution, 100 mg/l	
2354153	Nitrogen-Ammonia Standard Solution, 1000 mg/l	
	for ISECL1810x	
2318069	Chloride ISA Powder Pillows, pk/100	
2370853	Chloride Standard Solution, 100 mg/l	1 L
18349	Chloride Standard Solution, 1000 mg/l	500 mL
1425010	Chloride Standard Solution, 12500 mg/l (10 mL voluette ampules)	16
	for ISEF1810x	
258999	Fluoride ISA Powder Pillows, pk/100	
40505	Fluoride Standard Solution, 0.5 mg/l	500 mL
29149	Fluoride Standard Solution, 1.0 mg/l	500 mL
40520	Fluoride Standard Solution, 2.0 mg/l	500 mL
2797149	Fluoride Standard Solution, 5 mg/l	500 mL
35949	Fluoride Standard Solution, 10 mg/l	500 mL
23249	Fluoride Standard Solution, 100 mg/l	500 mL
	for ISENO31810x	
2984799	Nitrate ISA Powder Pillows, pk/100	
204649	Nitrate Standard Solution, 1 mg/l as NO3-N	500 mL
30749	Nitrate Standard Solution, 10 mg/l as NO3-N	500 mL
194749	Nitrate Standard Solution, 100 mg/l as NO3-N	500 mL
1279249	Nitrate Standard Solution, 1000 mg/l as NO3-N	500 mL

HQD E-Chem accessories

Accessories for all HQD meters

Part No. **Designation**

				
5825800	5828700	5829400	5828610	5825900

5818400	5834100	LZV791	LZV582	5811200

4754900	8508850

Accessories / Replacements for HDQ meters

5825800	Field Kit for "Standard" electrodes consisting of carrying case, outdoor kit (5828700) and 5 sample cups (2552200)
5835700	Field Kit for "Rugged" electrodes consisting of carrying case, outdoor kit (5828700) and 5 sample cups (2552200)
5828700	Outdoor Kit, shockproof plastic cover for outdoor use; with hand strap and neck strap
5829400	Probe holder, pk/1 Shockproof holder for the standard electrode, with cable management for up to 3 metres of cable; can be plugged into the Outdoor Kit
5825900	Protective shroud for rugged probes, complete
5160400	Protective shroud for LDO probe, complete for Lab LDO (IntelliCal/HQd/HQ)
5828610	Cable markers to indicate the depth, pk/5 (for outdoor electrodes only)
5818400	Colored clips (5 x 2 pcs) for probe identification
8508850	Universal Probe Stand for Standard IntelliCAL(R) Probes
4754900	HQd Meter Stand for HQd probes

HQD E-Chem accessories

Accessories for all HQD meters continued

Part No. **Designation**

Accessories for Data Management / Documentation

Data can be transferred to a PC, printer, or flash memory stick by using the USB/DC power adapter. The USB peripheral connector on the USB/DC power adapter is used for data transfer to a flash memory stick or printer. The flash stick can be connected to a PC for data transfer. The USB host connector on the USB/DC power adapter is used for direct connection to a PC using a USB cable (Type A Male, Type B Male).

Refer to Figure 6 for USB/DC Adapter connections.

Recommended USB-Printer for Documentation Purposes

5835X00.XX Thermal Printer, model PD-24

5	8	3	5	X	0	0	.	X	X

Power Option

100 … 120 VAC	**8**
220 … 240 VAC	**9**

Power Supply / Plug Type Option

with EU plug	**0 0**
with CH plug	**5 1**
with UK plug	**8 2**

Small, light weight & portable thermal printer for documentation purposes (203 DPI) suitable for DR3800, DR2800, DR5000,2100Q/QIS and HQD meters, LICO 150, 500 Printer comes with 1 printer paper roll, USB connection cable and appropriate power supply based on the selected model. for other applicable Standard Printers, please refer to Chapter "Instrument Accessories"

"Generally all printers with printer drivers that support the Hewlett-Packard Printer Control Language (PCL) level 3 or above."

LZM078 Thermal printer paper, pk/4
for DPU414, LD100/LD500 und CADAS 100 (LPG210/240), Printer Ganimede/LASA30/50/100/Xion500; width 11 cm (4 roles)

5834100 USB-Adapter Kit for portable HQd meter including AC/DC power supply (115/230 VAc)
XLH926 USB PC Interface cable, 1.5 m
5924000 USB cable, type A male / B male, 1.8 m
LZV791 USB-Memory Stick, 1 GByte or higher capacity[2]
(e.g. for Data Management and Software UpDates via InterNet)
LZV582 USB-Keyboard, type CHERRY Compact Keyboard (US Layout)

Note: The Data Transfer Software is available for download at free @ www.hach.com.

IntelliCal LDO accessories for BODn measurement using dilution method

5826700 BOD stirrer/funnel accessory Kit (EU)
62100 BOD-bottle, glass-stoppered, 300 ml, pk/ 1
62106 BOD-bottle, glass-stoppered, 300 ml, pk/ 6
62124 BOD-bottle, glass-stoppered, 300 ml, pk/24

241906 BOD bottle Cap, pk/6

Note: For further accessories and reagents, please refer to HACH method 8043, BOD Dilution method

HQD E-Chem accessories

HQD meter configurations for BOD measurement

Part No.	Designation
HQ40d.99.701000	HQ40d / LBOD Preference Package consisting of HQ40d, dual channel multi-meter LBOD IntelliCAL probe, 1 m BOD Bottles with stopper, glass, 300 ml, pk/6 Stand for HQd meters
HQ30d.99.701000	HQ30d / LBOD Preference Package consisting of HQ30d, single channel multi-meter LBOD IntelliCAL probe, 1 m BOD Bottles with stopper, glass, 300 ml, pk/6 Stand for HQd meters

Individual components, accessories, replacements

LBOD10101	IntelliCal LBOD sensor
LBOD70101.99	IntelliCal LBOD sensor, including Winkler glass bottles, 300 ml, pk/6
5838000	LBOD sensor cap replacement, for LBOD only, pk/1
5850800	LBOD stir paddle, made of plastic (replacement)
5852700	LBOD stir paddle, made of plastic (replacement for 5850800)
62100	BOD bottle, 300 ml, borosilicate glass, non serialized, pk/1
62106	BOD bottle, 300 ml, borosilicate glass, non serialized, pk/6
62124	BOD bottle, 300 ml, borosilicate glass, non serialized, pk/24
2943100	BOD bottles, disposable, 300 ml, w/o stoppers, pk/117
2943900	BOD bottle stoppers, acrylic, for 300 ml bottles, pk/25
190901	Stopper, glass, for BOD bottle 2086047, pk/1
241906	BOD bottle cap, plastic, pk/6 (fits over top of 300 mL BOD bottle)
2094200	BOD bottle rack, for 12 bottles

BOD Consumables

1486510	BOD standard solution, 300 mg/l Glucose plus Glutamic Acid, 10 mL Voluette® ampules, pk/16	
2918700	BOD seed inoculum, POLYSEED, 50 capsules/pk	
2845425	Nitrification inhibitor (ATU), 50 g	
253335	Nitrification inhibitor (TCMP), 35 g, for 200 tests	
253334	Nitrification inhibitor (TCMP), 500 g, for 2500 tests	
1416066	BOD Nutrient Buffer Pillow, 0.5 mL (for preparing 300 mL of dilution water)	50/pkg
1486166	BOD Nutrient Buffer Pillow, 3 mL (for preparing 3 L of dilution water)	50/pkg
2436466	BOD Nutrient Buffer Pillow, 4 mL (for preparing 4 L of dilution water)	50/pkg
1486266	BOD Nutrient Buffer Pillow, 6 mL (for preparing 6 L of dilution water)	50/pkg
1486398	BOD Nutrient Buffer Pillow, 19 mL (for preparing 19 L of dilution water)	25/pkg

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